

Hexachloro-1,3-butadiene

Chemical Information

CAS Number - 87-68-3

Alternate Names - Hexachloro-1,3-butadiene, 1,3-hexachlorobutadiene, perchlorobutadiene

General Uses - This chemical is used to make rubber, it is used as a solvent and to make lubricants, in gyroscopes, as a heat transfer liquid, and as a hydraulic liquid.

Potential Hazards - This chemical is highly toxic; it may be fatal if inhaled, swallowed or absorbed through the skin.

Summary Analysis– Hexachloro-1,3-butadiene

- In 2003, the 5,566,299 pounds of hexachloro-1,3-butadiene accounted for 7 percent of the total quantity of PCs. Since 1999, there was a 36.4 percent decrease in the quantity of hexachloro-1,3-butadiene.
- The same 5 facilities reported this chemical in 1999 - 2003. Two of these 5 facilities accounted for over 91 percent of the total quantity of this chemical in 2003.
- Except in 2000, when energy recovery was used to manage almost 2.3 million pounds of hexachloro-1,3-butadiene, onsite treatment has been the primary management method -- used to manage over 98 percent of the total quantity of hexachloro-1,3-butadiene.
- Since 2000, only 5 facilities in Region 6 have reported this chemical. Facilities in Louisiana accounted for almost 100 percent of the total quantity of hexachloro-1,3-butadiene in 2003.
- Five facilities in 4 industry sectors reported hexachloro-1,3-butadiene in 2003.

National Trends - Hexachloro-1,3-butadiene. Exhibit 4.88 presents the total PC quantity (lbs.) of hexachloro-1,3-butadiene in 1999 to 2003, showing the disposal, treatment, energy recovery, as well as recycling quantities. In 2003, the 5,566,299 pounds of hexachloro-1,3-butadiene accounted for 7 percent of the total quantity of PCs. Since 1999, there was a 36.4 percent decrease in the quantity of hexachloro-1,3-butadiene. The number of facilities that reported hexachloro-1,3-butadiene that reported hexachloro-1,3-butadiene between 1999 and 2000 remained relatively constant, with 5 facilities reporting this chemical in 2000- 2003.

Except in 2000, when energy recovery was used to manage almost 2.3 million pounds of hexachloro-1,3-butadiene, treatment has been the primary management method -- used to manage over 98 percent of the total quantity of hexachloro-1,3-butadiene since 1999. Although about 20 percent of the hexachloro-1,3-butadiene went to energy recovery in 2000, this management method has only been used for less than 2 percent of this chemical in other years since 1999. Since 1999, between 220,000 – 340,000 pounds of hexachloro-1,3-butadiene were recycled each year.

Exhibit 4. 88. National-Level Information for Hexachloro-1,3-butadiene

	1999	2000	2001	2002	2003	Percent Change (1999 - 2003)	Management Method -- Percent of Quantity of this Chemical in 2003
Number of Facilities	7	5	5	5	5	-28.6%	
Disposal Quantity (lbs.)	26	10	563	53	12	-54.0%	0.0%
Energy Recovery Quantity (lbs.)	0	2,274,214	0	80,570	61,619	NA	1.1%
Treatment Quantity (lbs.)	8,764,882	9,022,857	6,404,178	5,086,762	5,504,668	-37.2%	98.9%
Priority Chemical Quantity (lbs.)	8,764,908	11,297,081	6,404,741	5,167,385	5,566,299	-36.5%	
Recycling Quantity (lbs.)	280,000	250,000	220,000	340,010	300,000	7.1%	

Exhibit 4.89 shows the number of facilities that reported hexachloro-1,3-butadiene within various quantity ranges. Of the 5 facilities that reported hexachloro-1,3-butadiene in 2003, 2 facilities accounted for over 91 percent of the total quantity of this chemical.

Exhibit 4. 89. Distribution of Facilities that Reported Quantities for Hexachloro-1,3-butadiene (2003)

Hexachloro-1,3-butadiene (5,566,299 pounds)		
Quantity Reported	Number of Facilities Reporting this quantity	Percent of Total Quantity for this Priority Chemical
up to 10 pounds	0	0.0%
between 11 - 100 pounds	0	0.0%
between 101 -1,000 pounds	1	0.1%
between 1,001 - 10,000 pounds	0	0.0%
between 10,001 - 100,000 pounds	1	1.1%
between 100,001 - 1 million pounds	1	7.6%
> 1 million pounds	2	91.2%

EPA Region Trends- Hexachloro-1,3-butadiene. Exhibit 4.90 shows the quantity (pounds) of hexachloro-1,3-butadiene in the 2 EPA Regions where facilities reported this PC in 1999-2003. (Exhibit 4.91).

Exhibit 4. 90. Quantity of Hexachloro-1,3-butadiene Reported by EPA Regions (1999-2003)

EPA Region	1999	2000	2001	2002	2003	Percent Change in Quantity (1999-2003)	Percent Of the Total Priority Chemical quantity (2003)
2	9,210	0	0	0	0	NA	0.0%
6	8,755,698	11,297,081	6,404,741	5,167,385	5,566,299	NA	100.0%
Total	8,764,882	11,297,081	6,404,741	5,167,385	5,566,299	-36.4%	

Exhibit 4. 91. Distribution of Facilities Reporting Hexachloro-1,3-butadiene in 2003 & Quantity of Hexachloro-1,3-butadiene Reported in 2003, by Region

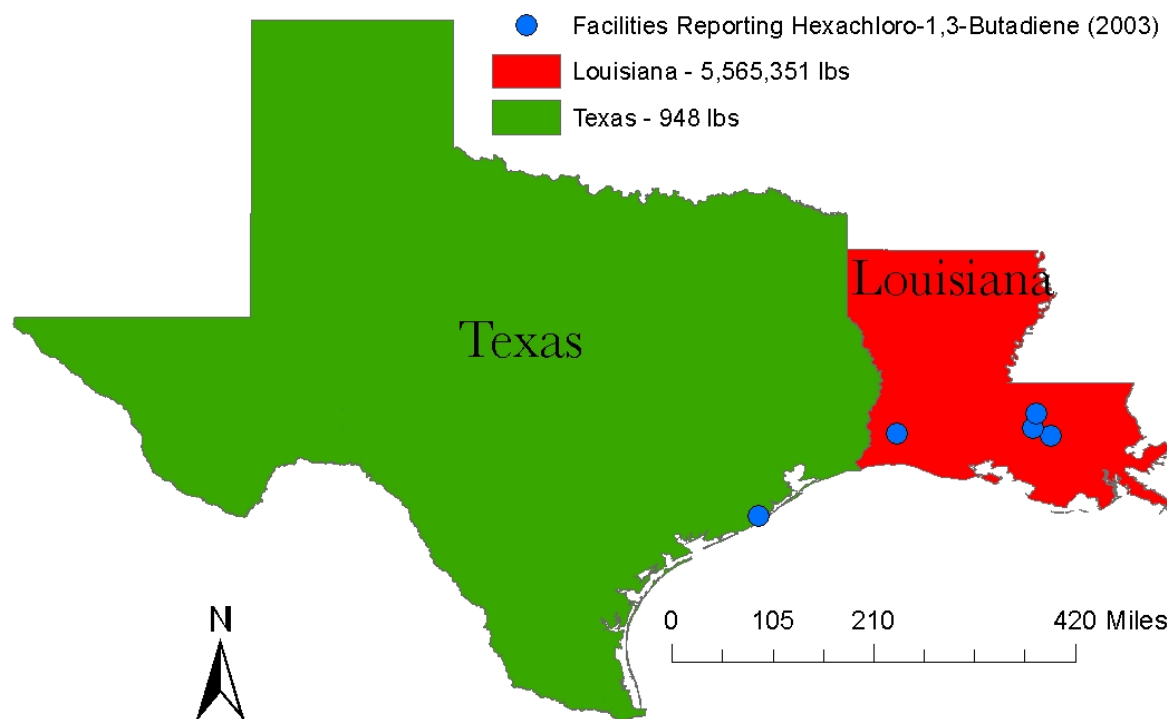


Exhibit 4.92 shows how hexachloro-1,3-butadiene was managed by facilities in Region 6 – the only Region with facilities that reported this chemical in 2003. In 2003, almost 99 percent of the PC quantity of hexachloro-1,3-butadiene was treated, mostly onsite. About 1 percent of the hexachloro-1,3-butadiene also was managed via energy recovery, primarily onsite. Negligible quantities were land disposed. A notable quantity of hexachloro-1,3-butadiene was recycled (onsite) by 1 facility.

Exhibit 4. 92. Management Methods for Hexachloro-1,3-butadiene, By EPA Region (2003)

EPA Region	Disposal		Energy Recovery		Treatment		Recycling	
	Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
6	1	11	61,562	57	5,487,714	16,954	300,000	0

State Trends- Hexachloro-1,3-butadiene. In 1999, facilities in 3 states reported a PC quantity of hexachloro-1,3-butadiene. Since 2000, facilities in only 2 of these states reported this chemical. Exhibit 4.93 shows the quantity of hexachloro-1,3-butadiene, between 1999 and 2003, that was reported by facilities in all 3 states (Exhibit 4.94) since 1999. Facilities in

Louisiana accounted for almost 100 percent of the total quantity of hexachloro-1,3-butadiene in 2003, with an increase of 21,952 lbs from 1999 - 2003. Texas facilities accounted for almost 22,000 pounds of hexachloro-1,3-butadiene, with a decrease of -3,211,351 lbs from 1999 – 2003 (Exhibit 4.95).

Exhibit 4. 93. State-Level Information for Facilities Reporting Hexachloro-1,3-butadiene (1999-2003)

State	1999	2000	2001	2002	2003	Change in Quantity (1999-2003)	Percent Change in Quantity (1999-2003)	Percent of Total Quantity of this Priority Chemical (2003)
Louisiana	5,543,399	11,274,320	6,402,097	5,162,499	5,565,351	21,952	0.4%	99.98%
Texas	3,212,299	22,761	2,644	4,886	948	-3,211,351	-100.0%	0.02%
New York	9,210	0	0	0	0	9,210	-100.0%	0.00%

Exhibit 4. 94. Hexachloro-1,3-butadiene State Trends

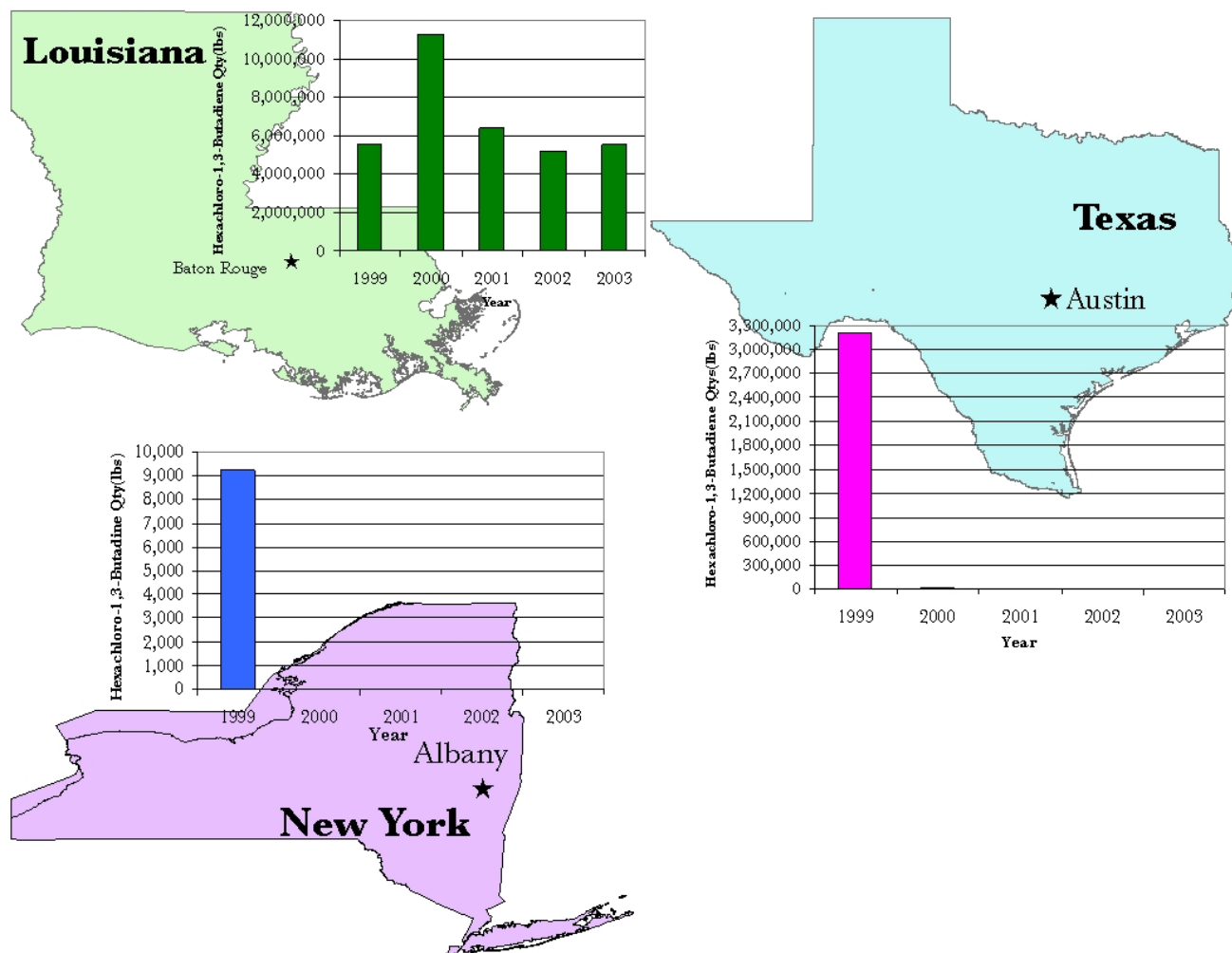


Exhibit 4. 95. Trends Analysis on States with Largest Quantity Increase and Decrease (1999 – 2003): Facilities in Louisiana and Texas

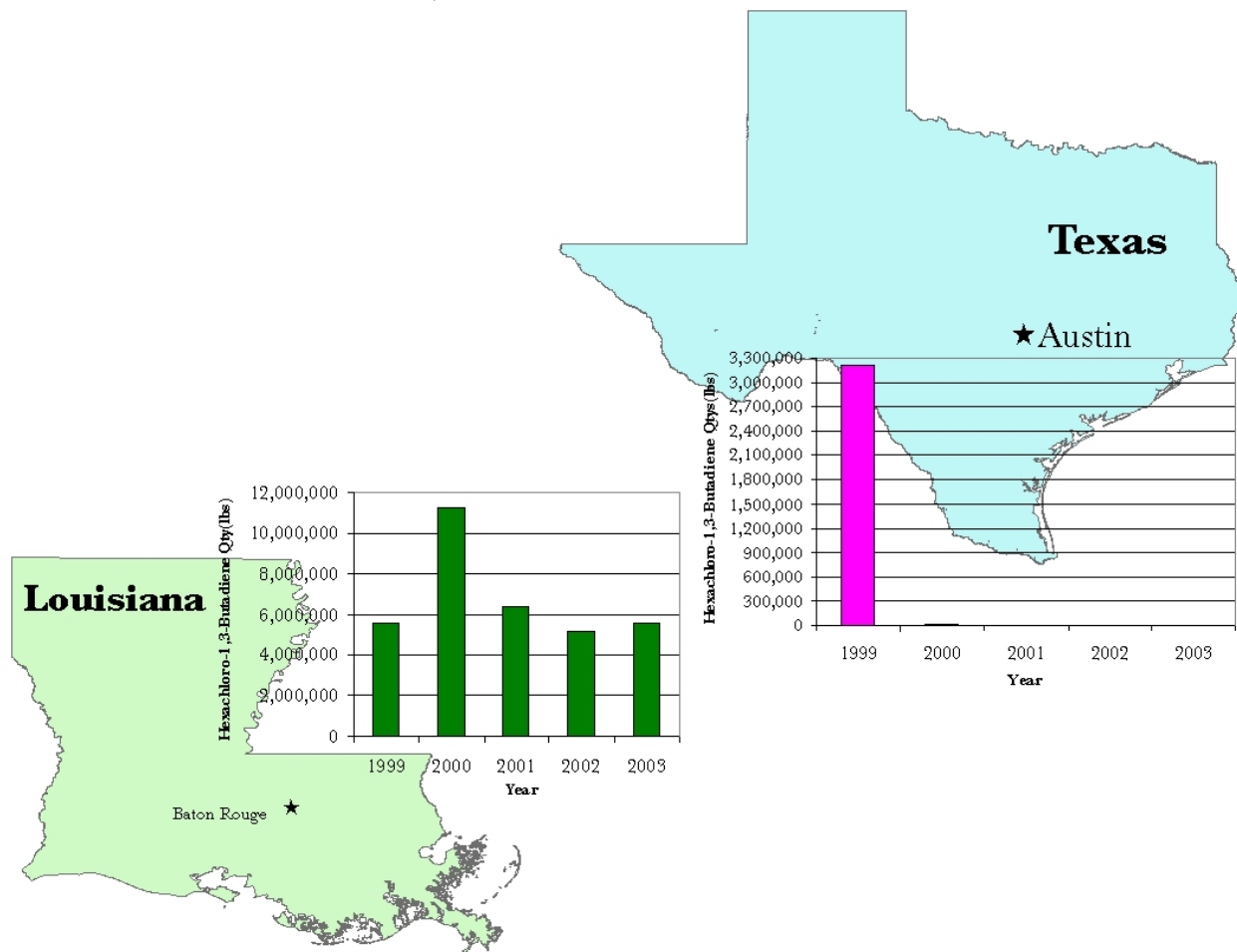


Exhibit 4.96 shows how hexachloro-1,3-butadiene was managed by facilities in the 2 states that accounted for 100 percent of the total quantity of this PC in 2003. Almost 99 percent of the hexachloro-1,3-butadiene reported by facilities in Louisiana and Texas was treated onsite. About 1 percent was managed via onsite energy recovery. A notable quantity of hexachloro-1,3-butadiene was recycled by one of the Louisiana facilities.

Exhibit 4. 96. Management of Hexachloro-1,3-butadiene in States (2003)

State	Total Priority Chemical Quantity (2003)	Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
Louisiana	5,565,351	1	11	61,562	57	5,487,503	16,217	300,000	0
Texas	948	0	0	0	0	211	737	0	0

Industry Sector (SIC) Trends- Hexachloro-1,3-butadiene. Exhibit 4.97 shows the PC quantity (pounds) of hexachloro-1,3-butadiene for the 5 industry sectors (SIC codes) where facilities report 100 percent of this chemical from 1999-2003. Five facilities in 4 industry sectors reported hexachloro-1,3-butadiene in 2003. Two facilities in SIC 2812 (Alkalies and chlorine) reported

the highest quantities in each of these years, accounting for almost 71 percent of the total PC quantity of hexachloro-1,3-butadiene in 2003. The I facility in SIC 2869 (Industrial organic chemicals, nec) accounted for over 28 percent of the hexachloro-1,3-butadiene in 2003. This facility's quantity of hexachloro-1,3-butadiene increased significantly in 2002 – to almost 1.6 million pounds from about 9,000 pounds in 1999 (and 0 pounds in 2000 and 2001). One facility in each of two other industry sectors – SIC 2819 (Industrial inorganic chemicals, nec) and SIC 2821 (Plastics materials and resins) reported 61,608 pounds and 948 pounds, respectively.

Exhibit 4. 97. Industry Sector-Level Information for Hexachloro-1,3-butadiene (1999-2003)

Primary SIC Code	SIC Description	Number of Facilities for this SIC Code (2003)	1999	2000	2001	2002	2003	Change in Quantity (1999-2003)	Percent of Total Quantity of this Priority Chemical (2003)
2812	Alkalies and chlorine	2	8,723,909	11,273,492	6,338,085	3,515,453	3,925,135	-55.0%	70.5%
2869	Industrial organic chemicals, nec	1	8,999	0	0	1,571,362	1,578,608	17442.0%	28.4%
2819	Industrial inorganic chemicals, nec	1	0	23,589	66,656	80,570	61,608	NA	1.1%
2821	Plastics materials and resins	1	0	0	0	0	948	NA	0.0%
2865	Cyclic crudes and intermediates	0	32,000	0	0	0	0	-100.0%	0.0%

Exhibit 4.98 shows how hexachloro-1,3-butadiene was managed at the 5 facilities in the 4 industry sectors that accounted for 100 percent of the total quantity of this PC in 2003. Treatment was used for 100 percent of their hexachloro-1,3-butadiene by facilities in 3 of the 4 industry sectors -- SIC 2812 (Alkalies and chlorine), SIC 2869 (Industrial organic chemicals, nec), and SIC 2821 (Plastics materials and resins). Virtually all of the treatment was performed onsite. Energy recovery (mostly onsite) was used by the 1 I facility in SIC 2819 (Industrial inorganic chemicals, nec). One facility in SIC 2812 recycled a notable quantity (300,000 pounds) of hexachloro-1,3-butadiene in 2003.

Exhibit 4. 98. Management of Hexachloro-1,3-butadiene in Industry Sectors (2003)

Primary SIC Code	SIC Description	Total Priority Chemical Quantity	Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
2812	Alkalies and chlorine	3,925,135	1	11	0	11	3,908,895	16,217	300,000	0
2869	Industrial organic chemicals, nec	1,578,608	0	0	0	0	1,578,608	0	0	0
2819	Industrial inorganic chemicals, nec	61,608	0	0	61,562	46	0	0	0	0
2821	Plastics materials and resins	948	0	0	0	0	211	737	0	0